ABSTRACT

Reliable transferring of data between mobile wireless nodes positioned at two points in a wireless network occurs through the dynamic formation of transmit/receive groups that collectively establish reliable communications. A mobile node at each point creates a neighbor list by periodically probing its surroundings to discover nearby nodes with which it can relaibly communicate. Prior to establishing a route or transmitting data, a node A first probes a distant next point in the network to determine if it can reliably communicate with that point. Upon receiving this probe and knowing one's neighbors, the nodes at this distant point dynamically form a receive group and choose a controlling node. Members of the group individually receive all future data from node A and pass the received data to the controlling node, which combines the individual signals for reliable reception. Similary, the controlling node reliably transmits data to node A by having each member of the receive group transmit the data, node A then combining the signals. Lastly, the nodes neighboring node A can form a transmit/receive group to assist node A in communicating with the distant point.